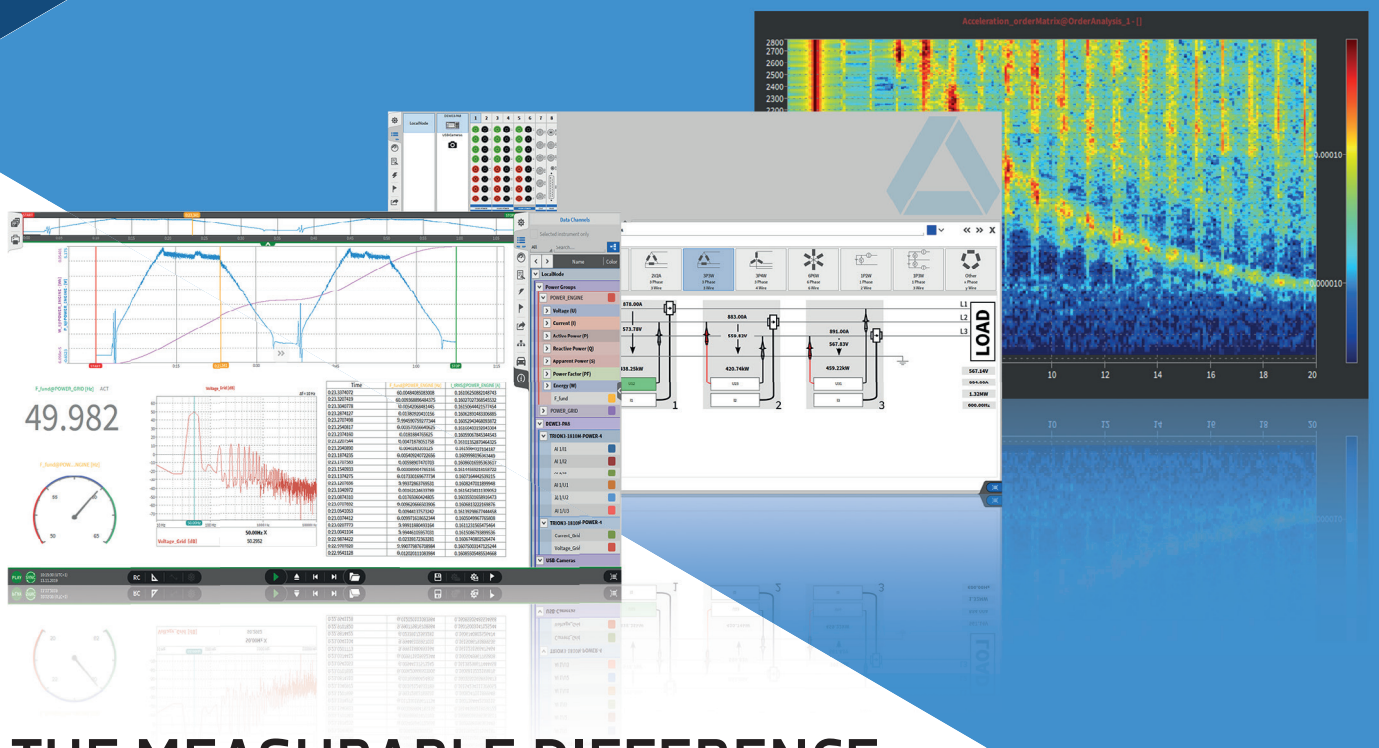
DEWETRON

OXYGEN

MEASUREMENT SOFTWARE

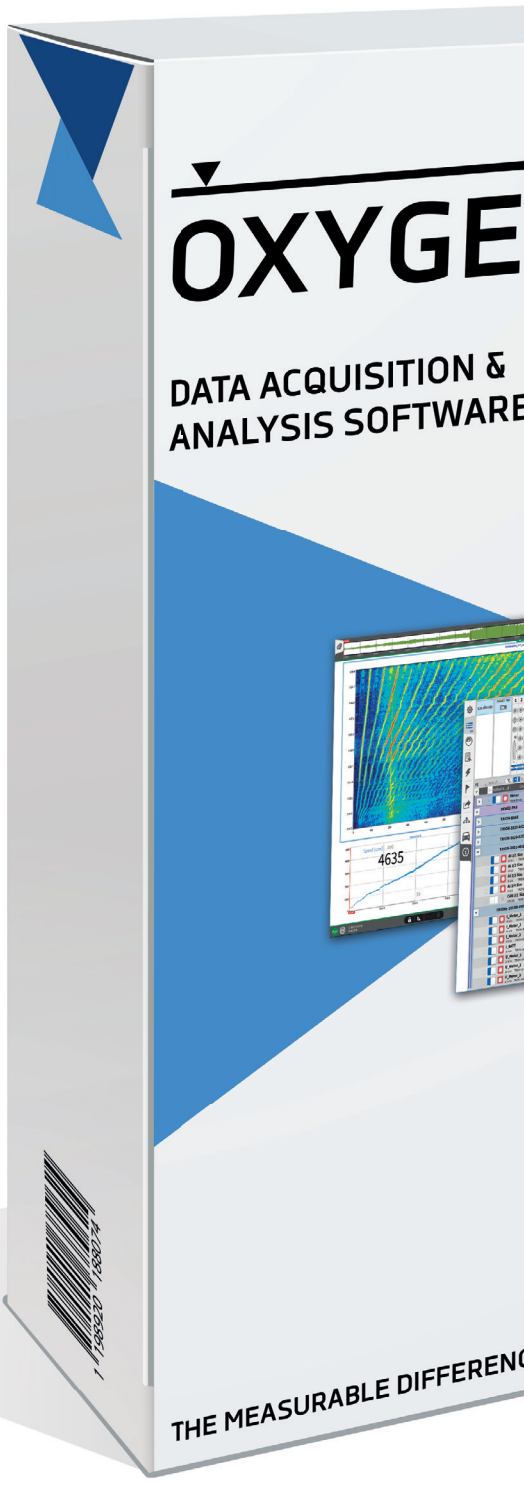


THE MEASURABLE DIFFERENCE.

OXYGEN

INTUITIVE AND EASY-TO-USE MEASUREMENT SOFTWARE

OXYGEN is designed to be operated via touchscreen or classic mouse and keyboard. Its nice instruments and controls make it fun to navigate through tons of data. 100 % made and rigorously tested in Austria by DEWETRON.

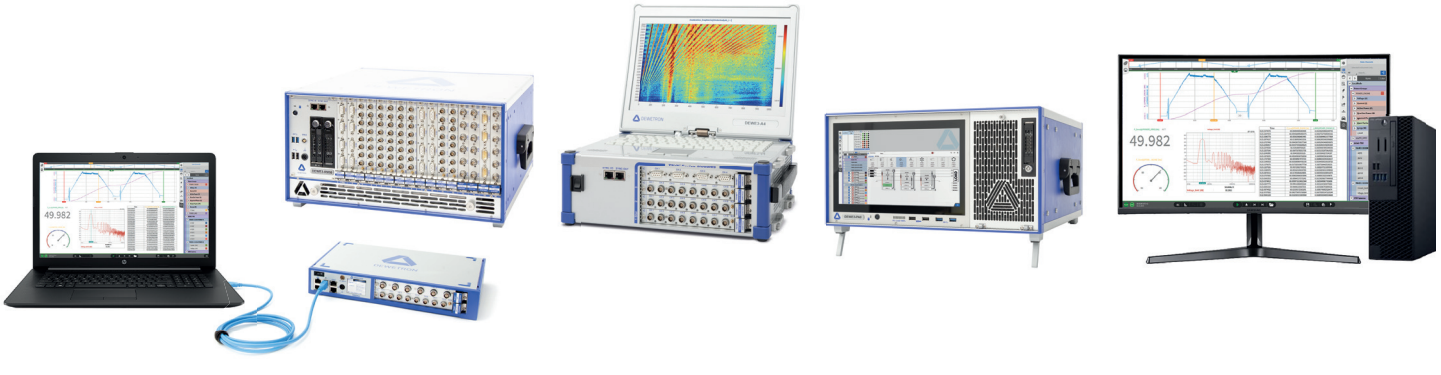


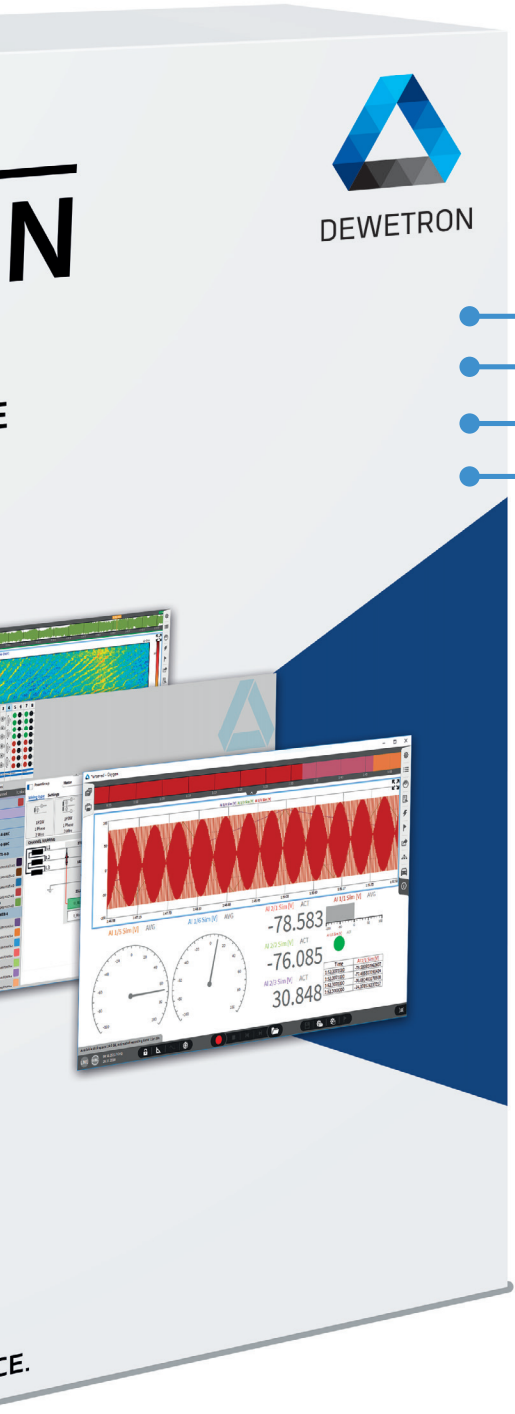
YOUR ADVANTAGES WITH OXYGEN

> All-in-one software for measurement, visualization, and analysis for many applications like Power Analysis, FFT, Order Analysis, ...
> OXYGEN-SDK plugin interface for customization
> Wide range of interfaces for testbed integration – including remote control capability via TCP/IP
> Unlimited installations for data view and analysis (license-free)

ONE SOFTWARE ON ALL INSTRUMENTS

Our all-in-one measurement analysis software can not only be used with every DEWETRON measurement system with an integrated PC but is also compatible to 3rd party components from Vector, GeneSys and OxTS. And it doesn't stop there, OXYGEN can also be used on any PC without any hardware to do post-processing by making use of the many offline features, analyze and export your recorded data and even create setups.





VIEWING & ANALYZING

Multiple precision measurement instruments and analysis functions increase the value of your measurements:

> Scope
> FFT
> E-Power calculation (efficiency measurement)
> XY chart
> DMS-rosette strain gauge measurement
> And many more

EFFICIENCY & PERFORMANCE

> Easy-to-use and intuitive
> Efficient workflow that minimizes the time between setup and reporting
> High-performance through 64-bit technology

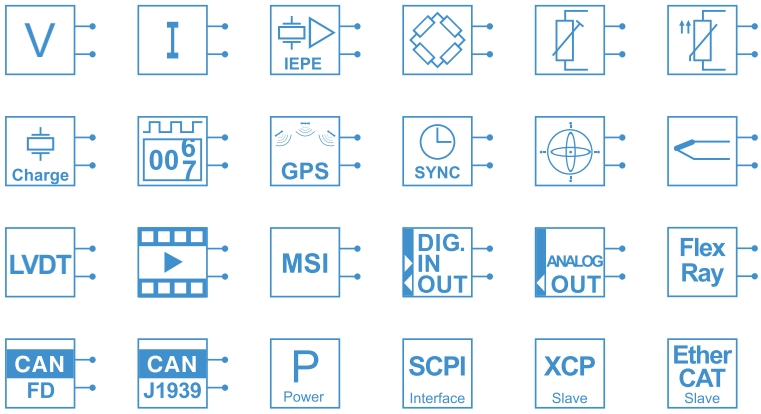
ANALYZE WHILE RECORDING

DejaView allows you to view and analyze all data from the start of the test, while data is still being recorded – an especially useful feature for long term testing.
Live View: Live data is still visible at the same time on a different recorder, on the same or on a different screen.

LOGGING & RECORDING

Freely define your measurement screen(s), up to hundreds of channels. Keep track of all your data by using multiple measuring screens.
Use trigger functions to immediately capture any anomaly in the data. Split data from one recording to seperate data files.
Record any input over a long period of time:

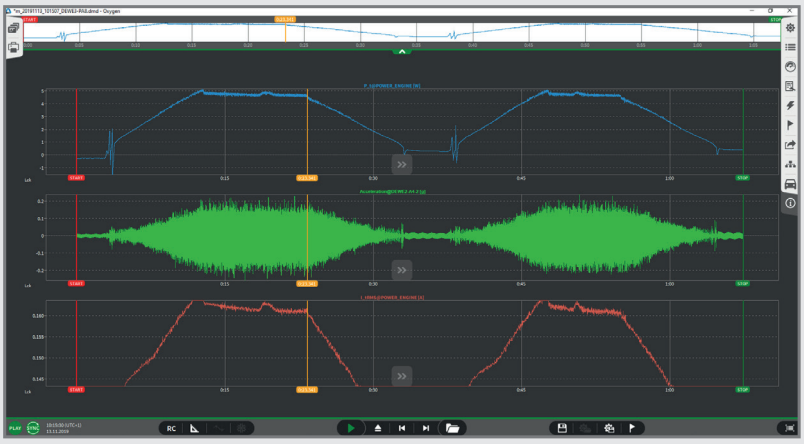
> Voltage, current
> Power
> Temperature
> Pressure
> Acceleration
> Strain gauge
> And many more

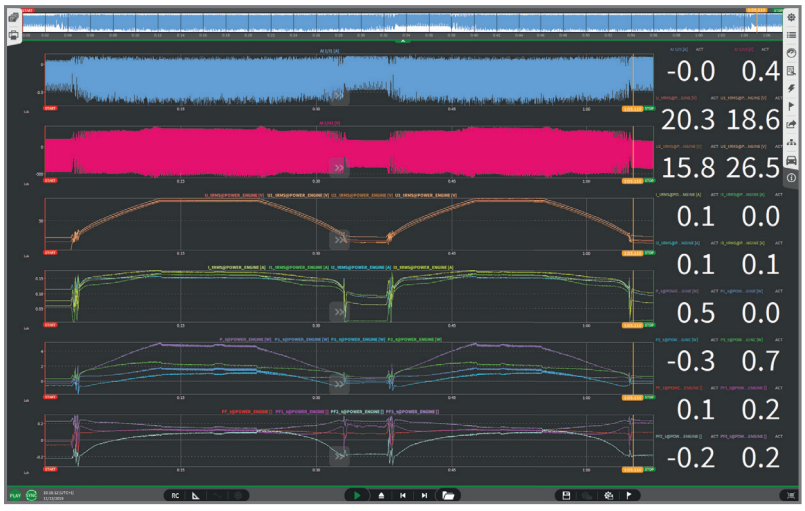


DATA ACQUISITION

Data acquisition is one of the core features of OXYGEN. It is capable of continuous and synchronous acquisition of data from several sources: analog, digital, encoder, CAN, Ethernet, video, GPS and much more.

> Analog data with up to 10 MS/s via TRION3™
> Digital and encoder data with automatic rpm and angle calculation
> CAN(-FD) decoding via dbc, including J1939. Compatible with Vector VN-series (option)
> Ethernet receiver for external sensors (option)
> Video data from USB or GigE camera
> Precision GPS position data via TRION™, GeneSys ADMA or OxTS RT series





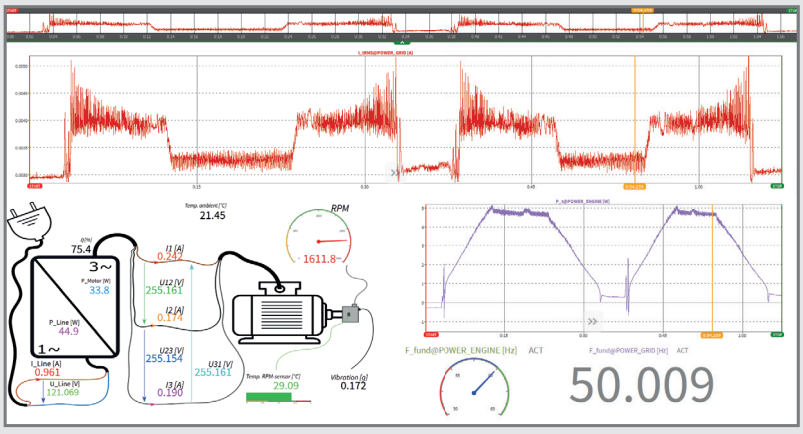
RECORDING

The second core feature of OXYGEN is powerful data recording. All the acquired data can be stored in one data file with a simple touch on the record button. With the right hardware, you can achieve data rates up to 1 GB/s, you don't have to bother to lose anything.

> DejaView to review data during recording
> File-split option for generating a new file after an amount of time or event occurrence
> DMD-file format for efficient storage
> Save data locally or remotely on a shared drive
> Open on any PC with the installed OXYGEN software (for FREE)

VISUALIZATION

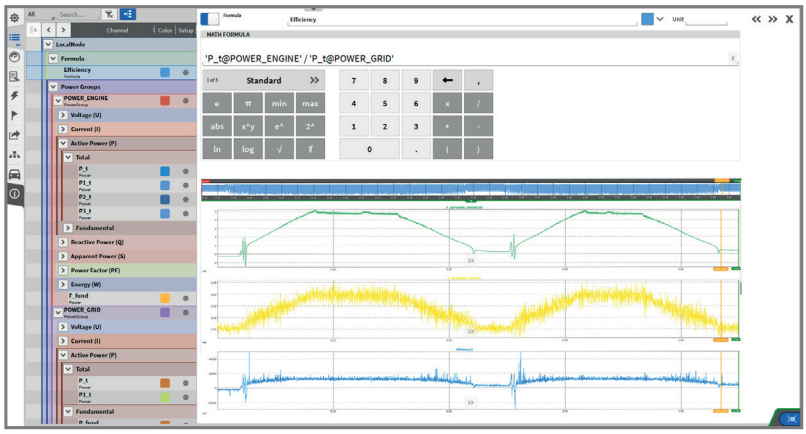
> The right visualization gives the data its value. Attractively designed visualization instruments with intuitive and smooth operation.
> 16 different visualization instruments for every purpose
> Highly customizable screens, perfect for your application
> Multi-monitor support for best overview

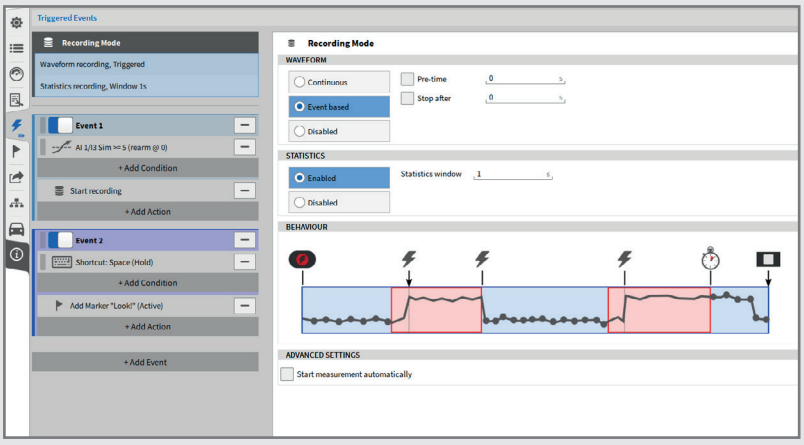


MATH AND CALCULATION

The highly customizable setup also allows the creation of several software channels to meet your purposes:

> Formula for arithmetic and more advanced calculations (trigonometric, logical and measurement functions)
> Block-wise statistics to calculate average, rms, min and max values
> High, low, bandpass and bandstop IIR-filter up to the 10th order
> DMS-rosette calculation module for 45°, 60°, and 90° setups
> Psophometric analysis for railway and telecommunication applications





TRIGGER & EVENTS

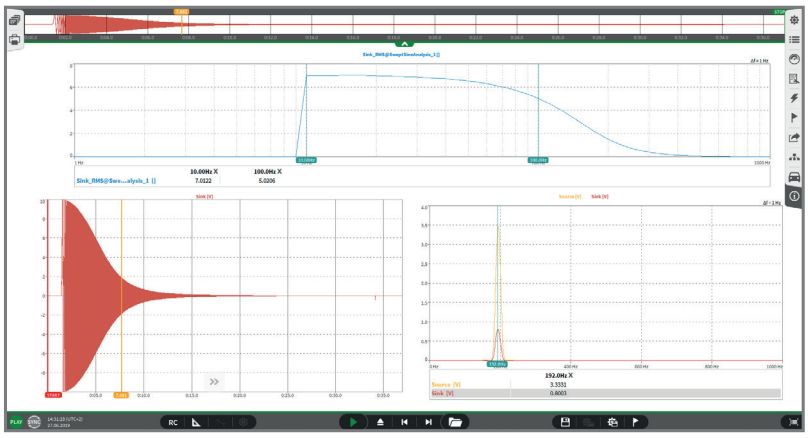
The powerful trigger and event system makes it easy to record data in case of events, create marker, set a digital output or make a snapshot of the actual measured data. The user can create different events, each consisting of one or more trigger conditions and one or more actions.

> Many different trigger conditions: signal leve (positive/negative edge, window) with optional rearm level, keyboard or time
> Powerful actions like start/stop of recording, set an alarm with optional digital output, set a marker with pre-defined text or make a snapshot of the actual measured data.

ANALYSIS AND POST-PROCESSING

The real work often begins after the live measurement. To complete this workflow, OXYGEN also supports post-processing and analysis of the recorded data.

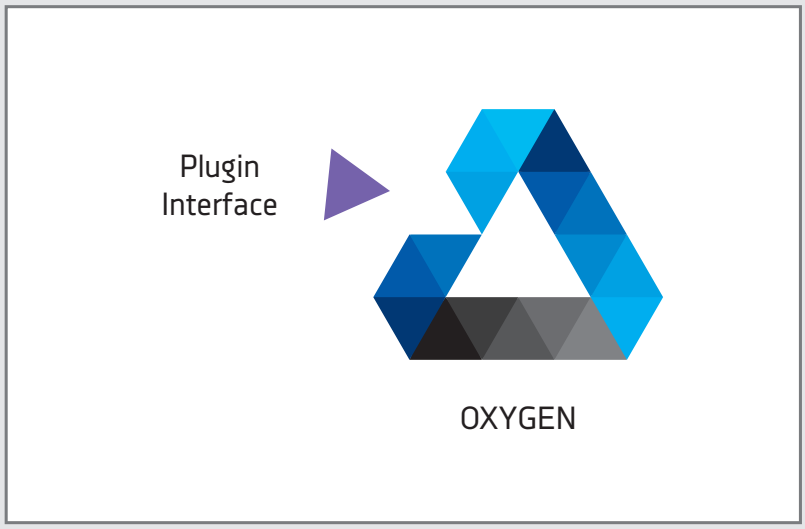
> Use many of the math and calculation (also incl. FFT) features to refine your measurement results
> Create new visualizations and measurement screens
> Quick navigation through the data with well-known gestures and intuitive zoom and scrolling mechanisms
> Create reporting pages
> Export data to complete your workflow
> And the best: you can do that also on your PC - license-free!

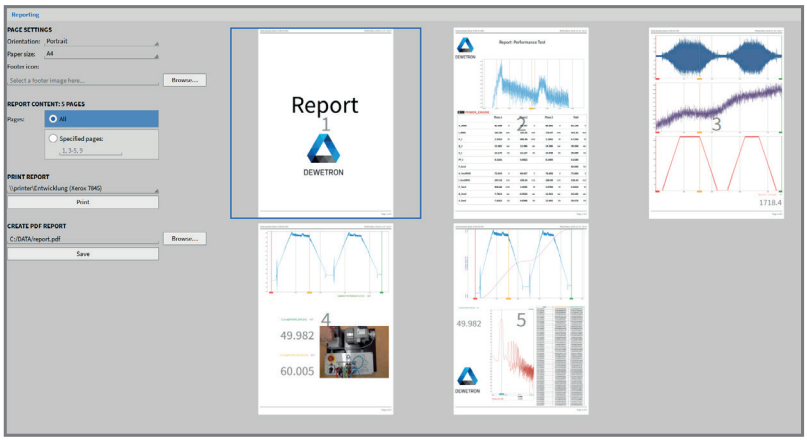


OXYGEN-SDK (PLUGIN INTERFACE)

You like OXYGEN, but it does not cover all your needs? Customize it! We are proud to announce our new plugin interface, which gives you the possibility to add more software functions on your own.

> C++ plugin interface for customization
> Add complex mathematical calculations, which are not supported by built-in functions
> Use 3rd-party sensors and data sources and bring them into OXYGEN
> Output data from OXYGEN via not supported interfaces
> Visit us on GitHub and download example code: https://github.com/DEWETRON





REPORTING

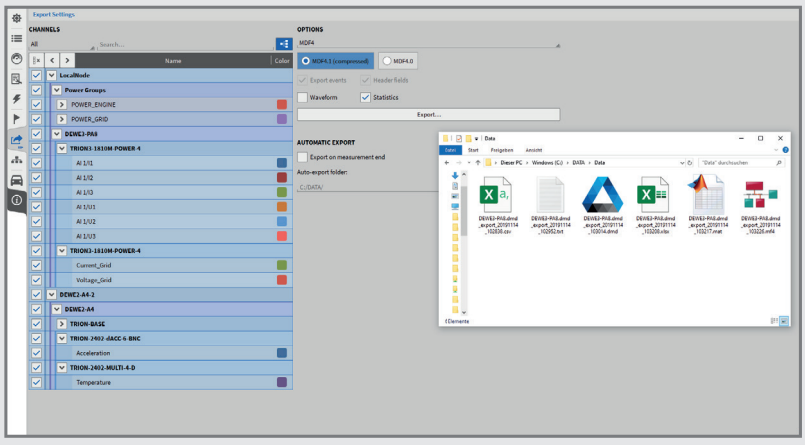
Use OXYGEN for your whole measurement workflow. From acquiring data to post-processing and finally reporting the data.

> Separate reporting pages (additional to the measurement screens) with typical printing layouts
> Just duplicate a measurement screen or create new pages with a simple click
> Use all instruments and visualizations also in the reporting pages
> Separate time-cursor on each page available to report different time snippets in one report
> Directly print or save to pdf

EXPORT FEATURES

If you need to use other analysis software for further data processing, we offer data export for the most common applications and formats.

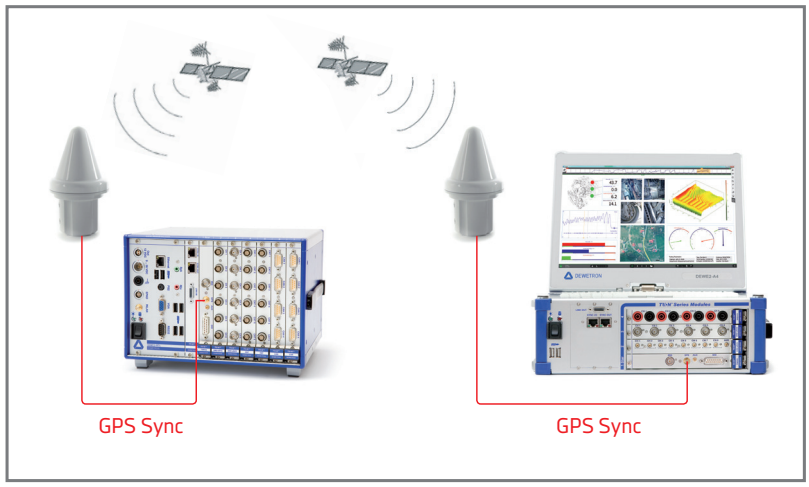
> Universal formats: CSV and TXT with selectable delimiter and timestamp format
> Advanced formats: Excel (.xlsx), Matlab (MAT ver. 7.2), ASAM MDF4 (4.0 and 4.1) and DMD
> Select channels and/or time-range of the exported data
> Optional automatic export at measurement end

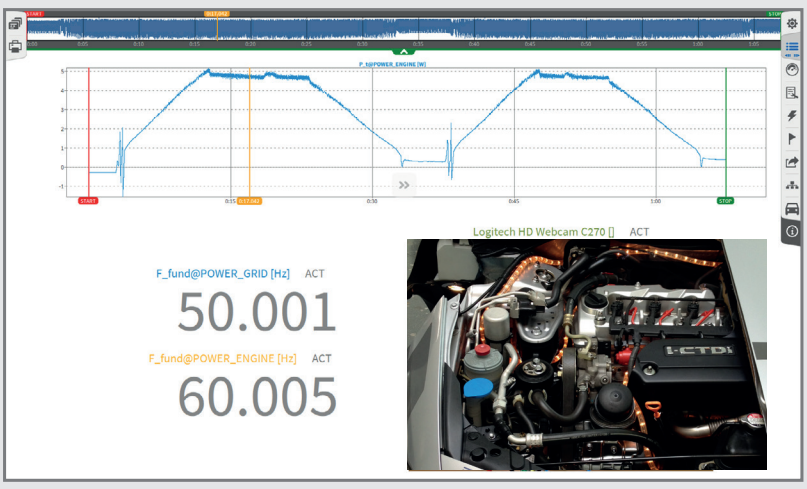


SYNCHRONIZATION

Use our TRION-BASE, TRION-TIMING or TRION-VGPS module to acquire data synchronously to other measurement devices. Relative time and absolute time synchronization are supported.

> Absolute time synchronization via PTP (IEEE 1588), GPS and IRIG
> Relative time synchronization via PPS and TRION-SYNC-BUS
> Optional synchronization of operating system time





VIDEO INPUT

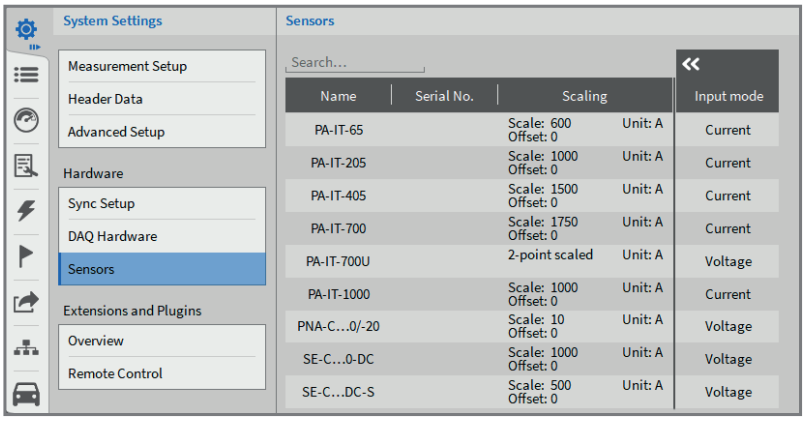
Do you want to record video data additionally to your sensor inputs? No problem with OXYGEN! Use any USB-cam which is supported in Windows 10 or use our synchronized Manta GigE-cam for frame-by-frame synchronous acquisition.

> Support of USB-cams as well as Manta GigE-cam
> Separate video file for viewing and editing in other applications in MKV-format

SENSOR DATABASE

The sensor database is your personal list of sensors which you can simply use in the channel setup

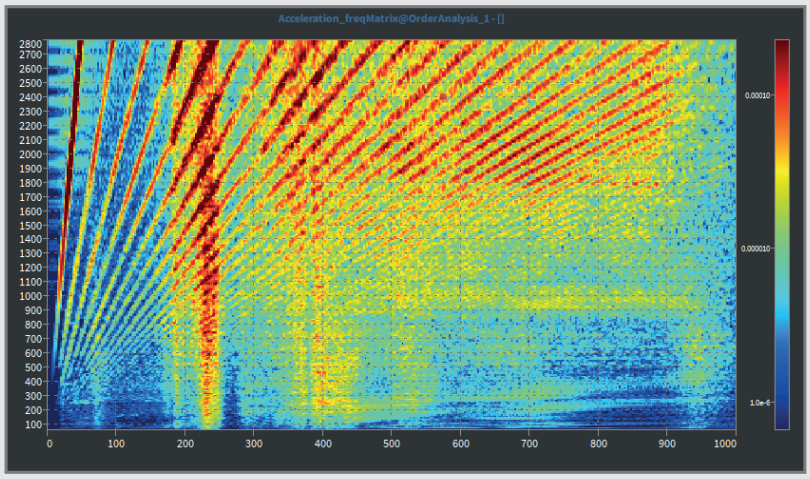
> Simple edit of the sensors with a workflow similar to the channel list
> Store name, serial number and scaling information of each sensor you want to use, including optional settings of the used input channel like measurement mode, filter, and excitation
> Independent from the measurement setup, you can create your personal sensor database once and use them on all your measurement devices by simply copy paste of the database

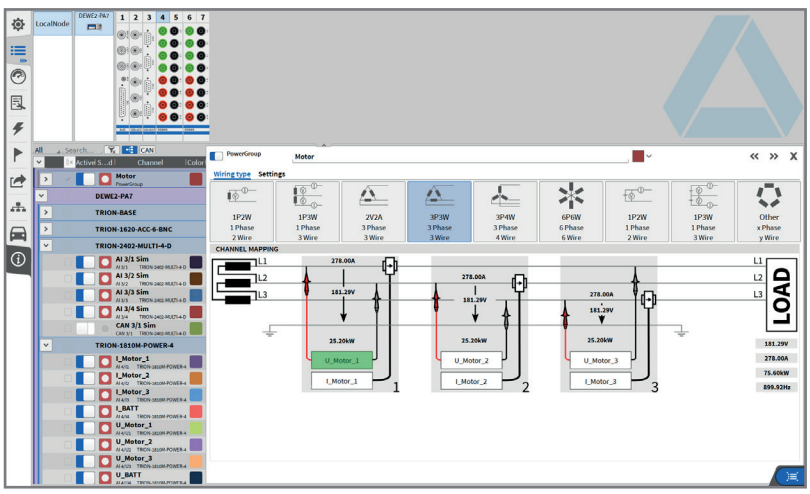


ORDER ANALYSIS

Noise and vibration analysis module for rotating machines. This feature turns your OXYGEN into a full order analysis instrument for calculation and visualization of frequency and order spectra vs. speed.

> Simultaneous frequency and order domain analysis
> Smart resampling algorithm for accurate and fast results
> Selectable speed ranges from 60 to 100.000 rpm
> Order resolution from 0.01 to 1, with up to 90 % overlapping
> Order extraction for selected orders for use in recorder or XY-instrument
> Visualization of the resulting matrix in intensity diagrams





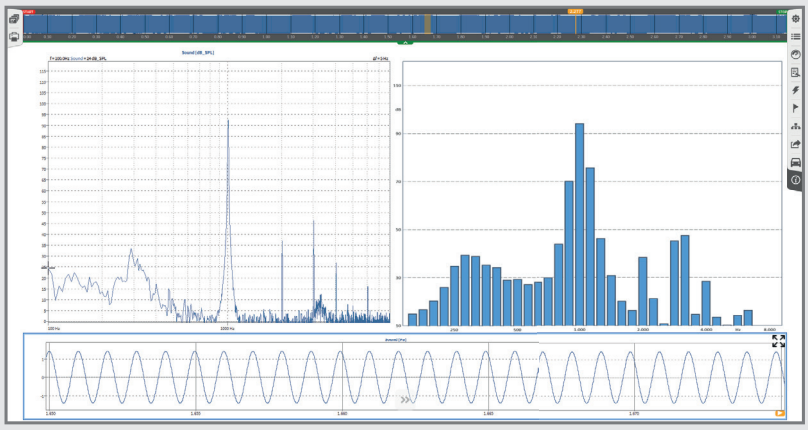
POWER ANALYSIS

> Analysis of 1-9 phase power systems (1P2W, 2V2A, 3P3W, 3P4W, 6P6W, ...)
> Several power systems are logically summarized into power groups
> Gapless cycle-by-cycle calculation, no blind spots
> Unique fundamental frequency detection with delay compensation for highest accuracy and reliability of the results
> BASIC: voltage, current RMS, AVG, fundamental and symmetrical components, active/reactive/apparent power total and fundamental, energy
> ADVANCED: harmonics (IEC 61000-4-7), flicker (IEC 61000-4-15), flicker emission (IEC 61400-21) and mechanical power/efficiency
> EXPERT: rolling calculation meets FGW-TG3 (TR3)

FFT, OCTAVE & SOUND LEVEL ANALYSIS

OXYGEN assists every application with its high flexibility and easy usage. Powerful instruments and math calculations are available to get every exercise done:

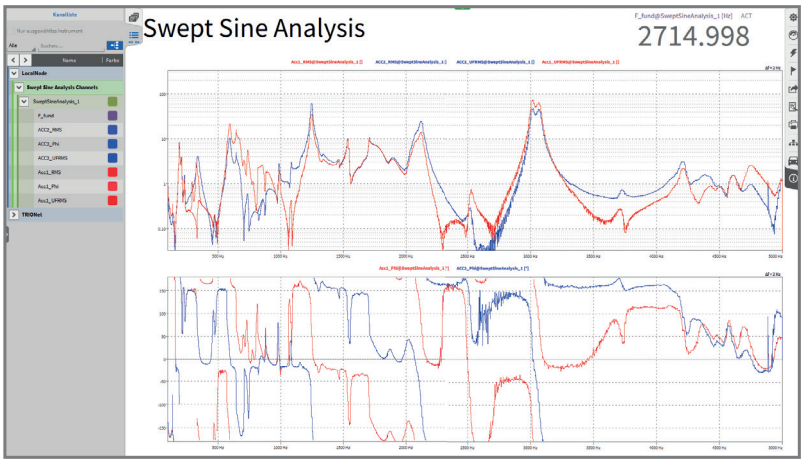
> Freely selectable (not only 2^N) number of input samples or line resolution
> Optional zero-padding for higher line resolution
> 7 different window types
> Spectrum analyzer instrument with 18 different scaling types (amplitude, RMS, PSD, decibel, ...)
> Average and overlap feature
> Spectrogram instrument for time-dependent analysis with selectable color map

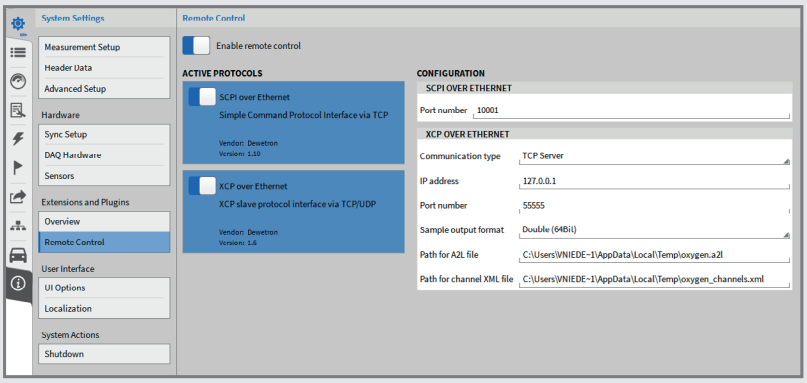


SWEPT SINE ANALYSIS

Calculation module for swept-sine structural analysis like shaker tests. This feature helps you creating bode diagrams of your device under test.

> Synchronization from 1 Hz to 20 kHz
> Calculation of total and fundamental amplitude and phase
> One to many input channels per synchronization source
> Visualize amplitude and phase data in a spectrum analyzer instrument as a bode diagram





REMOTE CONTROL AND DATA TRANSFER

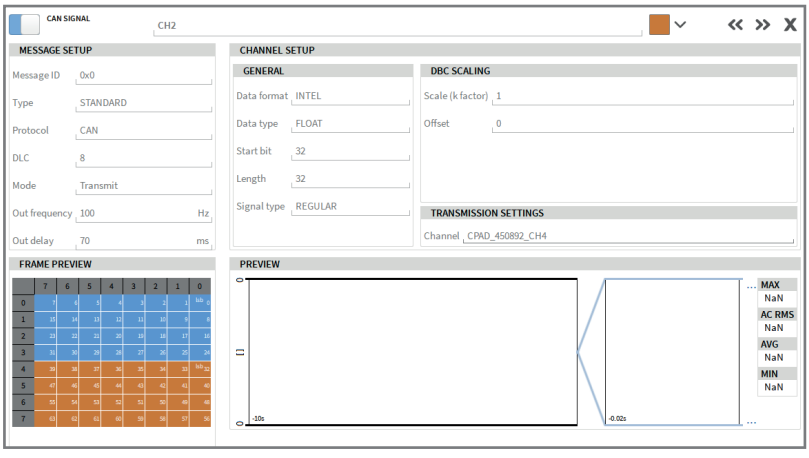
OXYGEN does not only support local operations like other measurement software, but also a remote control for setup, acquisition, and measurement.
Different options are available:

> SCPI over Ethernet (included) for loading setup, recording control, and transfering data
> XCP over Ethernet for recording control and data transfer (ASAM standard) to testbed controller (Vector CANape or ETAS INCA) with up to 10 kS/s
> Remote desktop and VNC operation

CAN-OUT, XCP-OUT, ETHERCAT

You need to transfer the acquired data to a testbench? No problem, the optional data transmission functions make it very easy to serve almost every OXYGEN channel cyclically on various interfaces.

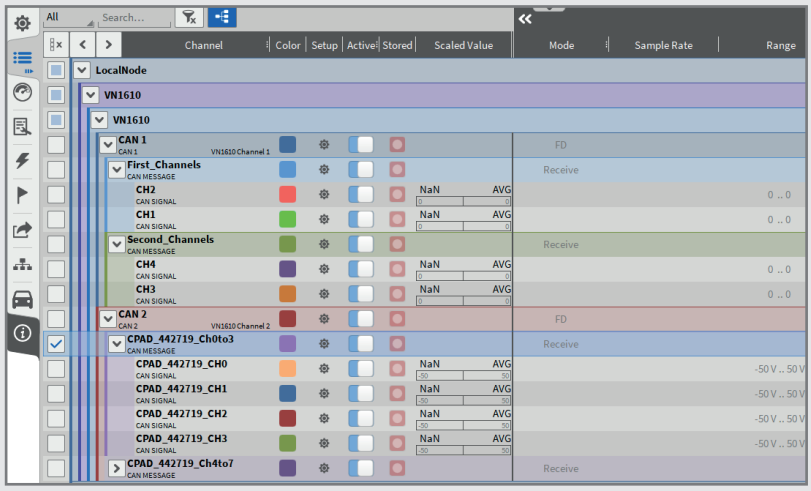
> EtherCAT in combination with TRION-ETHERCAT module
> XCP over Ethernet; according to ASAM standard
> CAN-bus, send and receive data simultaneously on the bus
> SCPI over Ethernet



CAN-FD

Standard CAN does not meet your requirements anymore? Together with Vector CAN adapters and this software option you are ready to use CAN-FD. Data rates up to 8 MBaud can be achieved, with a payload of up to 64 Byte.

> Support of Vector VN1610, VN1630 and VN1640 USB-adapters
> Use CAN and CAN-FD simultaneously
> Software-sync mechanism for advanced timestamp accuracy
> CAN-OUT is also supported to send measurement data



BIRD'S EYE

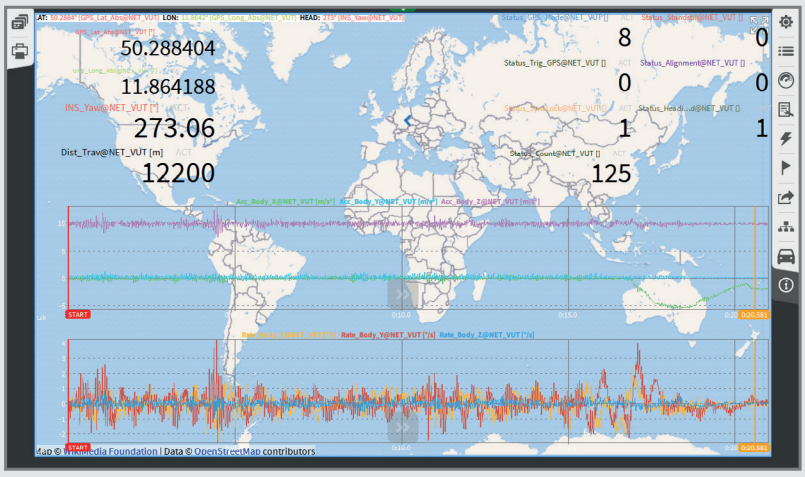
The OXYGEN Bird's Eye plugin is the state-of-the-art software plugin to visualize the testing environment of your (ADAS) test within the software. Based on the acquired IMU data, the position and movement of all involved objects are updated online. Using the shape editor, a realistic contour of each involved object (i.e. VUT, GVT) can be created for precise distance calculations between test objects.

> Creation of complex 2-dimensional realistic vehicle shapes incl. automatic and EURO NCAP-conform POI assignment
> Online distance calculations between all involved objects
> Proving ground and test setup visualization from the bird's eye view

IMU SUPPORT

OXYGEN supports two different brands of IMUs (Inertial Measurement Unit) for precise measurement of a vehicle position. GeneSys ADMA and OxTS RT series are the first choices when it comes to ADAS testing equipment.

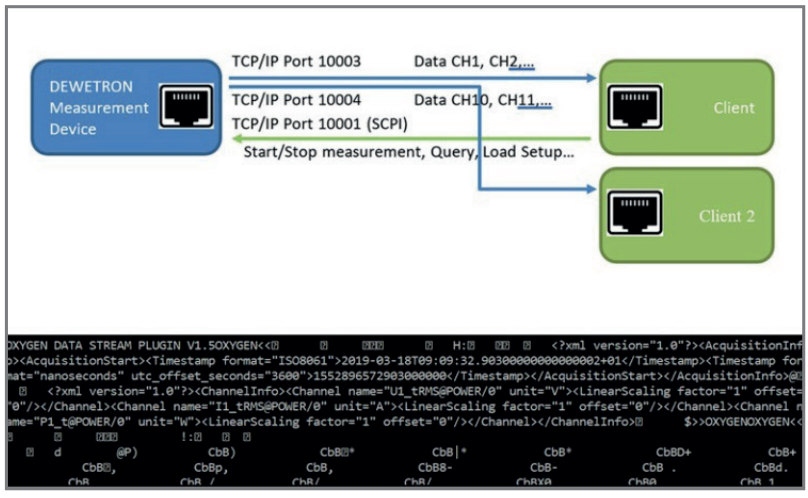
> Support of GeneSys ADMA (Version 3.3) and OxTS RT series (NCOM and RCOM data streams)
> Synchronous acquisition of position and auxiliary data in OXYGEN via Ethernet (UDP)
> 1-6 simultaneous streams are supported, with pre-defined packet decoding patterns

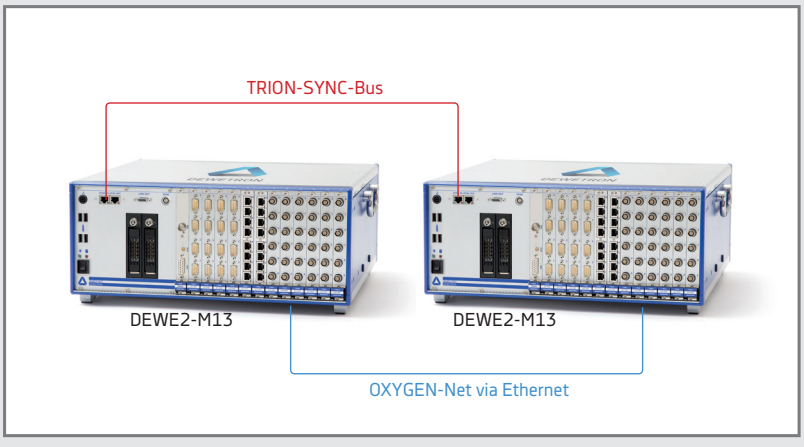


DATA STREAM

Live data processing in your own application? The data stream feature makes it possible! Stream the acquired data (including calculated data like power or statistics) via TCP/IP with high-speed to one or even more applications.

> Stream the acquired data via TCP/IP
> Configure stream(s) via SCPI-interface for fully remote-control operation
> Supports 1 to N streams, individually configurable channel selection





OXYGEN-Net

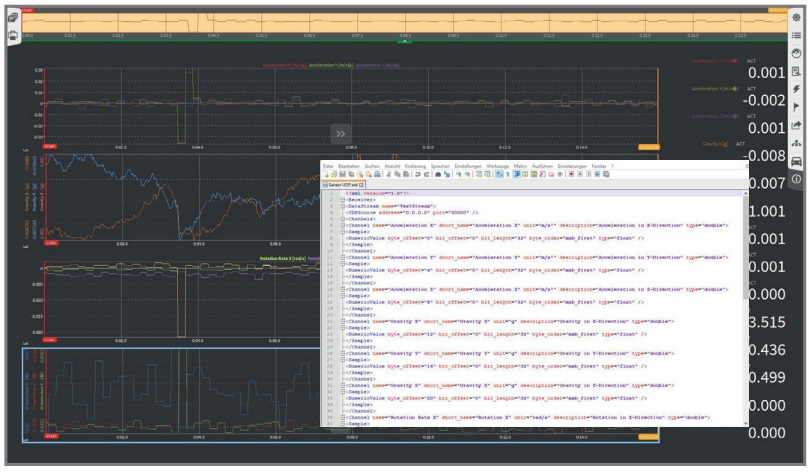
Many applications require more than one measurement device, sometimes even at different locations. OXYGEN-Net makes it possible, to sum up all devices to one virtual measurement device. You only need a reliable network connection, and you can simply claim all available nodes and operate it from the main device.

> Create one big virtual device with several remote nodes (measurement cloud)
> No complicated settings needed, simply claim and remove nodes with one click
> Works with absolute time synchronization as well as with TRION-SYNC-BUS
> Remote and local data storage possible for edundancy

ETHERNET RECEIVER

You have data sources you want to use in OXYGEN? The Ethernet receiver is your solution. It supports the decoding of UDP-packets into OXYGEN channels to be visualized and recorded together with all your other data.

> Support of 1 to several receiver instances for decoding more than one data stream
> Simple XML decoding structure for packet description
> Optional time synchronization with timestamp decoding
> Decoding of integers and floating-point number with optional scaling information



OXYGEN Options

OPTIONS	DESCRIPTION
OXYGEN-NET (OXY-OPT-NET)	OXYGEN option for networked data acquisition Enables synchronized measurements from multiple, distributed DEWETRON measurement systems Supports remote controlled setup via network as well as transmitting the raw data of selected channels to the master system
CAN-FD (OXY-OPT-CAN-FD)	OXYGEN option for receiving soft-synced CAN-FD messages supported hardware: Vector VN16xx and VN56xx interfaces, connected via USB
CAN-OUT (OXY-OPT-CAN-OUT)	OXYGEN option for transmitting measurement data via CAN, configured with a .dbc-File Compatible with TRION-CAN modules
POWER Basic (OXY-OPT-POWER-BASIC)	OXYGEN option for basic electrical power measurement and analysis Turns your DEWETRON instrument into a Power Analyzer Voltage, current, power, frequency, true RMS and fundamentals are measured and analyzed
POWER Advanced (OXY-OPT-POWER-ADV)	OXYGEN option for advanced electrical power measurement and analysis Besides the basic power parameters also harmonics, flicker and flicker emissions are measured and analyzed
POWER Expert (OXY-OPT-POWER-EXP)	OXYGEN option for expert functions of power measurement and analysis Additional to the basic and advanced parameters, also continuous moving single period values are measured for analysis of transient events like voltage drops or load jumps
Sine Processing (OXY-OPT-SINE-PROCESSING)	OXYGEN option SINE PROCESSING - for online and offline use For swept-sine analysis, create bode diagrams (amplitude and phase) within a wide frequency range of 1 Hz to 20 kHz
Psophometer (OXY-OPT-PSOPHOMETER)	OXYGEN option PSOPHOMETER - for online and offline use For analyzing and determination of the influence of traction power to telecommunication circuits, calculation of RMS values with different weighting types
Ethernet Receiver (OXY-OPT-ETHERNET-REC)	OXYGEN option ETHERNET RECEIVER for receiving targeted messages (or broadcast) of TCP and UDP packets GUI supports setup creation for the universal, static decoder Synchronization via input timestamp
GigE Video (OXY-OPT-CAM-GIGE)	OXYGEN option to support DEWE-CAM-GIGE cameras Allows GIG-E video data acquisition, fully synchronized with analog data
ADMA Platform (OXY-OPT-IMU-ADMA)	OXYGEN option for data acquisition of multiple GeneSys ADMA GPS/INS platforms via Ethernet
Oxford IMU (OXY-OPT-IMU-OXTS)	OXYGEN option for data acquisition of multiple Oxford Technical Solutions (OxTS) IMUs via Ethernet Receive data from RT series IMUs, incl. HW-sync for mixed-signal operation
Bird's Eye Basic (OXY-OPT-BIRDSEYE-BASIC)	OXYGEN option for the visualization and relative distance calculation of multiple stationary objects and ONE moving object/vehicle Additional features: - Creation of complex 2-dimensional shapes (e.g. the vehicle silhouette) - Visualization of objects on OSM (Open-Street-Maps) or satellite pictures - Visualization of previously recorded routes (KML import)
Bird's Eye Additional Object (OXY-OPT-BIRDSEYE-ADD-1)	Adds ONE additional moving object / vehicle to an OXY-OPT-BIRDSEYE-BASIC
XCP Interface (OXY-PLUGIN-XCP-OUT)	OXYGEN option for online data transmission (raw data or averaged data) from measurement system to testbed via XCP on Ethernet No support for XCP data input/recording
Data Streaming (OXY-OPT-DATASTREAM)	OXYGEN option for data streaming High-speed access to OXYGEN data via TCP/IP network connection, Remote control by SCPI commands, Single stream to multiple receivers possible Multiple streams in parallel for adequate response time when mixing slow and fast data rates (raw data and math) Programming examples and documentation included
High-speed Video (OXY-ADDON-HS-VIDEO)	The HS-VIDEO package for OXYGEN includes software and hardware to synchronize high-speed video along with measurement data and for the analysis after the measurement. The HS-VIDEO is recorded with the native HS-CAMERA-SOFTWARE (not included), and must provide an AVI-format.
ORDER ANALYSIS (OXY-OPT-OA)	Analysis module for rotating machine's noise and vibration. This feature turns your OXYGEN into a full order analysis instrument for calculation and visualization of frequency and order spectra vs. speed.

DEWETRON

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ABOUT DEWETRON

DEWETRON is an Austrian manufacturer of precision Test & Measurement systems designed to help our customers make the world more predictable, efficient and safe. Our strengths lie in customized solutions that are immediately ready for use while also being quickly adaptable to the changing needs of the test environment and sophisticated technology of the Energy, Automotive, Transportation and Aerospace industries.
More than 30 years of experience and innovation have awarded DEWETRON the trust and respect of the global market.

There are more than 25,000 DEWETRON measurement systems and over 400,000 measurement channels in use in well-known companies worldwide. Choosing DEWETRON means, having a partner by your side who accompanies you every step of the way.
DEWETRON employs over 120 people in 25 countries and is part of the TKH Group, a global corporation, that specializes in the development and supply of innovative solutions worldwide. DEWETRON quality is certified in compliance with ISO9001, ISO14001 and ISO17025.